John M. Guynn

From:

Randy Smith [rsmith@earthshell.com]

Sent:

Saturday, September 17, 2005 6:09 PM

To:

John M. Guynn

Subject:

FW: UPDATE: Wrap Model 005

Attachments: Wrap Model - Rev 005 040501.xls

John:

Please let me know if you need any more information. There is a lot more.

RAS

From: Matt Loos

Sent: Friday, April 06, 2001 10:05 AM

To: Donna Balinkie; John Nevling; Randy Smith; Kishan Khemani

Cc: Matt Loos; Scott Houston Subject: UPDATE: Wrap Model 005

Folks,

Yesterday afternoon, Simon requested that I insert an additional tab to reflect the economics of substituting PLA for Biomax, using the Wrap L Biomax/Ecoflex formulation.

I would appreciate your review and comments.

Thank you, Matt

Changes 9/19/2005 - 6:48 PM

Biodegradable Wrap Model EarthShell Corporation

Version changes listed by date (most recent at top)

Color Key

Light Yellow Assumptions link/Input Linked to another tab Drives a link to a tab Calculated

Lavender (Color Scheme just to the left of Lavender) Light Green furquoise (Color Scheme just under Turquoise)

Version 005 04-05-01 - Matt Loos

- 1- Added additional tab to reflect replacing Ecomax with Eastar
- 2- Updated General Assumptions for Eastar and new tab
- 3- Input notes regarding frieght and duty assumptions on Ecoflex
- 4- Updated Exchange rates
- Added additional tab to reflect replacing Biomax with PLA 5
- 6- Updated General Assumption for PLA and new tab
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Version 004 03-09-01 - Matt Loos

Version 003 02-20-01 - Matt Loos

Version 002 11-27-00 - Matt Loos

Version 001 11-13-00 - Matt Loos

Biodegradable Wrap Model EarthShell Corporation Issues

- 1- What about vendor effeciencies? What are the Throughput assumptions.
- Seek vendors that allow Blowing, Slitting, Printing & Winding as one process. 2- Seek vendors that allow Blowing, Slitting, Printing
 3- At this point, none of these steps are optimized
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Distribution - Internal Review - 02/28/01 - integral to wrap team

- A) Business Plan Simon
- Bagkraft / Bourroughs
- Apply technology / single laminate material
- B) Blowing, Printing, Sheeting, Slitting to \$0.30 per pound Randy
 - requires formula to be 'locked-in'
- Tranamerican blowing capacity is 4500MT/year, OR 1/3 of printing capacity
 - C) Discussion with Dupont and BASF for 'cocktail' Simon (Donna)
 - Compounding in-line at the source

Comparison Summary with Commercial Volume Pricing **Biodegradable Wrap Model EarthShell Corporation**

PRODUCT	MATERIAL	BASIS WT (gm/sqM)	WRAP WT (gm)	WRAP SIZE	Avg \$/sqM	\$/LB	Avg \$/1000
Current Famous/Big 4-Way	20#/24# Plastawrap	39.5	9.4	14 1/4"x13"	2.62	1.22	12.31
Western/Super 4-Way	20#/24# Plastawrap	39.5	5.6	15"x15"	2.57	1.20	14.70
Special/Burger Promo	20#/24# Plastawrap	39.5	5.6	15"x15"	2.62	1.20	14.99
Crispy Chickn Paper 4-Way	20#/24# Plastawrap	39.5	5.6	15"x15"	2.62	1.14	14.97
Chicken 4 Way Paper	20#/24# Plastawrap	39.5	4.5	13 1/2"x13"	2.86	1.18	11.82
Hamb/Chsbrgr/Fish/Promo	15#/18# Plastawrap			12 1/2"x13"			7.63
Sunrise/Burrito Foil	.00025/14# Paper (Foil)	(1		10 1/2"x 11"			11.92
Typical High Quality Burger Wrap w/ Graphic	20#/24# Plastawrap	39.5	5.6	15" x 15"	2.62	1.20	14.99
<u>Proposed</u> Sandwich Wrap A - Biomax∕Ecoflex, printed, 30 micron	See Wrap A tab		6.1	15" x 15"	3.18	1.35	18.18
Sandwich Wrap L - Biomax/Eastar - 50 micron	See Wrap L-BiomaxEastar tab	astar tab	5.1	15" x 15"	2.94	1.50	16.79
Sandwich Wrap L - PLA/Ecoflex - 50 micron	See Wrap L-PLAEcoflex tab	ex tab	5.1	15" x 15"	2.54	1.29	14.50
Sandwich Wrap L - Biomax/Ecoflex - 50 micron	See Wrap L-BiomaxEcoflex tab	coflex tab	5.1	15" x 15"	2.54	1.29	14.50
Notes: Quick White (Collar)	16#/FC807	: .		12"x12"			4.17

Summary 9/19/2005 - 6:48 PM

Biodegradable Wrap Model Assumptions:

Assumption	Confidence
	Detail Description
	Units
	Value
	<u>Assumption</u>

MODEL DESCRIPTION

<u>.</u>:

Review 4 different Wrap formulations

Open items and assignments

2 formulations (A, L-BiomaxEcoflex) based upon Ecoflex/Biomax

1 formulation (L-BiomaxEastar) based upon Eastar MW/Biomax

1 formulation (L-PLAEcoflex) based upon Ecoflex/PLA

II. PRODUCT CONFIGURATION

************		50% Biomax - 4026, 15% Eastar MW / 35% Filler - ES4338	
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Ecomax 20/80 3% StO2 5% ITO2 25% CaCO2 filled, white, printed 4 colors 30 minus	. D	77	
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Ecomax 20/80, 3% StO2, 5% TrO2, 25% CaCO2 filled, white, printed 4 colors, 30 milron.	50% Biomax - 4026, 15% Ecoffex / 35% Filler - ES4438	~	50% PLA, 15% Ecoffex / 35% Filler - ES4336
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- Blomax/Ecoffex, printed; 30 micron	- Biomax/Ecoffex - 50 micron	- Biomay Eastar - 50 micron	-PLA/Ecoflex - 50 micron
A - Blomax/Ecoflex, printed, 30 micron	L - Blomax/Ecoflex - 50 micron	L. BiomaviEastar. 50 micron	L - PLA/Ecoflex - 50 micron
p.ABiomax/Ecoflex, printed, 30 micron	p.LBiomax/Ecoffex50 micron	D.LBiomavEaslar50 micron	p.LPLA/Ecoffex - 50 micron
ap A - Blomax/Ecoflex; printed, 30 micron	ap L Biomax/Ecoflex - 50 micron	ap L. BomawEastar. 50 micron	ap LPLA/Ecoflex - 50 micron
frap A - Biomax/Ecoflex, printed, 30 micron	Vrap L - Biomax/Ecoffex - 50 micron	Vrap L Biomav/Eastar50 micron	Vrap LPLA/Ecoffex - 50 micron
Wrap A - Blomax/Ecoflex, printed, 30 micron	Wrap L - Biomax/Ecoflex - 50 micron	Wrap L. BomawEastar 50 micron	Wrap L - PLA/Ecoflex - 50 micron
1 Wrap A - Biomax/Ecoflex, printed, 30 micron	n Wrap L - Biomax/Ecoffex - 50 micron	1 Wrap L Biomav Eastar 50 micron	ı Wrap LPLA/Ecoflax - 50 micron
ch Whap A - Blomax/Ecoflex; printed, 30 micron	ch Wrap L - Biomax/Ecoflex - 50 micron	ch Wrap L BomavEastar 50 micron	ch Wrap LPLA/Ecoflex 50 micron
vich Wrap A ∗ Biomax/Ecoflex, printed, 30 micron	wich Wrap L - Biomax/Ecoffex - 50 micron	vich Wrap L Biomax Eastar 50 micron	vich Wrap LPLA/Ecoflax - 50 micron
dwich Wrap A - Blomax/Ecoflex; printed, 30 micron	dwich Wrap L - Biomax/Ecoflex - 50 micron	dwich Wrap L - Bromax/Eastar - 50 macron	twich Wrap LPLA/Ecoflex-50 micron
ndwich Wrap A - Bismax/Ecoflex, printed, 30 micron	ndwich Wrap L - Biomax/Ecoffex - 50 micron	ndwich Wrap L Biomax'Easlar50 micron	ndwich Wrap LPLA/Ecofex50 micron
Sandwich Whap A - Biomax/Ecoflex, printed, 30 micron	Sandwich Wrap L - Biomax/Ecoffex -: 50 micron	Sandwich Wrap L. Biomax Eastar - 50 micron	Sandwich Wrap LPLA/Ecoffex50 micron

III. PRODUCT FORMULATION (Weight mix ratios)

All formulations (weight mix ratios) are controlled on the respective Wrap presentation tabs Wrap thickness (microns) is related to weight, but model drives from weight (grams) only.

Bioplast GF 105/30/W20 Ecoflex FBX

% of Total Bioplast GF 105/30/W20

% of Total Bioplast GF 105/30/W20	% of Total Bioplast GF 105/30/W20	% of Total Slipping Agent	% of Total Slipping Agent	% of Total Slipping Agent	% of Total Bioplast GF 105/30/W20
28.29%	0.94%	33 33%	33.33%	33.33%	4 76%
PLA - Germany	Slipping Agent	Loxamid	Loxiol	K21	Masterbatch white

Sandwich Wrap A - Biomax/Ecoflex, printed, 30 micron

6 10 grams

	% %08
Total Wrap Weight	Biomax 6926

General Assumptions 9/19/2005 - 6:48 PM

% of Biomax + Ecoflex

5.4grams theoretical weight - Randy @ 02/23/01 5.1g current weight - Randy @ 02/23/01 5.83 without ink weight - Randy @ 02/23/01

Biodegradable Wrap Model

Assumptions:

Open items and assignments

Assumption Confidence			
<u>Detail Description</u> % of Biomax + Ecoflex % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight	% of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight	% of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight	% of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight % of Total Wrap Weight
Value 20% % 3.0% % 5.0% % 25.0% % 25.0% %	5.10 grams 50% % 15% % 35% % 50% %	5.10 grams 5.10 grams 15% % 35% % 50% %	5.10 grams 50% % 15% % 35% % 50% %
Assumption Ecoflex FBX Talc - SiO2 Whitener - TiO2 Limestone - CaCO2	Sandwich Wrap L - Biomax/Ecoflex - 50 micron Total Wrap Weight Raw Materials: Biomax 6926 Ecoflex FBX Filler - Assume CaCO2 Formulation: Biomax 6926 PaperMatch ES4338	Sandwich Wrap L - Biomax/Eastar - 50 micron Total Wrap Weight Raw Materials: Biomax 6926 Eastar MW - H Filler - Assume CaCO2 Formulation: Biomax 6926 PaperMatch ES4338	Sandwich Wrap L - PLA/Ecoflex - 50 micron Total Wrap Weight Raw Materials: PLA - Hyoail B.V. Ecoflex FBX Filler - Assume CaCO2 Formulation: PLA - Hyoail B.V. PaperMatch ES4338

IV. RAW MATERIALS PRICING (FOB vendor)

all prices are FOB Converter	Randy verified price Randy verified price Randy verified price
	\$ 0.14 \$/lb. \$ 0.99 \$/lb. \$ 0.09 \$/lb.
Low Volume	Inoganics Anti-block - SiO2 Whitener - TiO2 Inorganic Filler - CaCO3

Product design still not finalized.

95% 95% 95%

Resin

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Biodegradable Wrap Model Assumptions:

	Assumption <u>Confidence</u> Open items and assignments				Randy		RASE Prontistan composition: Consists mostly of	TiO2 (60%7?) and Ecoflex (40%??), but there is most likely other trace additives.	
	Assun	20%	%06 %06			92%			
	Detail Description	\$1.10 initial verbal quote provided by DuPont Provided by H.Schmidt - 02/22/01 Assumes 'delivered price'	High Grade - Provided by Kishan. Assumes 'delivered price' Low Grade - Provided by Kishan. Assumes 'delivered price'	Provided by Kishan - verbal quote from Bill Kelly. Hycail U.S. prices not yet available	Proprietary - A. Schulman Inc. % of respective Masterbatch	Biotec Sales price = 6.22DM Raw Mat. + 1.28DM Compounding	Provided by H.Schmidt - 02/22/01	Provided by H.Schmidt - 02/22/01	Derived Total raw material cost excluding compounding cost
	<u>Value</u> Units	\$ 118 \$/Ib. 5,80 DM/kg \$ 120 \$/Ib.	\$ 2:00 \$/lb. \$ 1:83 \$/lb.	\$ 1:00 \$/lb.	an \$ 0.75 \$/lb. 70%	\$ 7.50 DM/kg	\$ 137 \$/b. 1180 DM/kg \$ 245 \$/b. 5.35 DM/kg \$ 11148 DM/kg	8:00 DM/kg \$ \$1b.	\$ 1.290 \$/b. \$ \$ 0.784 \$/b. \$ \$ 0.784 \$/b. \$ \$ 0.789 \$/b. \$ \$ 0.048 \$/b. \$ \$ 0.007 \$/b. \$ \$ 0.008 \$/b. \$ \$
imptions:	Assumption	Biomax 4026 - DuPont (Rigid) Ecoflex FBX - BASF (Flexible) Ecoflex FBX - BASF (Flexible)	Eastar MW - H Eastar MW - L	PLA - Hycail B.V. (Rigid)	Masterbatch Compounding by A. Schulman ES4228 % Filler - Assume CaCO3	Masterbatch Compounding by Biotec Bioplast GF 105/30/W20 Bioplast GF 105/30/W20	PLA - Germany PLA - Germany Loxamid (Slipping Agent) Loxamid (Slipping Agent) Loxiol (Slipping Agent) Loxiol (Slipping Agent) K21 (Slipping Agent) K21 (Slipping Agent)	Masterbatch white Masterbatch white	Bioplast GF 105/30/W/20 Ecoflex FBX PLA Slipping Agent Loxamid Loxiol K21 Masterbatch white

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Biodegradable Wrap Model Assumption

	Open items and assignments	Masterbatch compounding costs will remain relatively high without competition										Converter is not yet identified Dupont will not convert.	This process step not optimized		This process step not optimized												This process step not optimized	Wrap Model - Rev 005 040501 (2) N:\text{Nmodels\Polarcup EarthShell\Clamshell\}}
Assumption	Confidence	95% 95%	2	%56	050	8	%26	à	8,08	95%							ē											
	Detail Description	Kishan Memo - 11/06/00	% of respective Masterbatch	Kishan Memo - 11/06/00	% of respective Masterbatch	% of respective Masterbatch	Kishan Memo - 11/06/00	% of respective Masterbatch	Notice 1 1 1 1 1 1 1 1 1	Kishan Memo - 11/06/00	% of respective Masterbatch	Blow, Silt, (Embosse), Print & Sheet	Integral to in-line process		Integral to in-line process		Represents speed of slowest process in-line		Assume part no greater than 15" x 15"					Assume part no greater than 15" x 15"			Integral to in-line process	4
	Units	1,000 lbs	<u>.</u>	\$/lp.	4/12		\$/lb.	e 1	.dl/e	\$/lb.		\$/lb.		\$//b. \$//b. \$//b.		\$/hour	fVmin	.⊑ .	ın parts	parts/min parts/min	\$/part	\$/hour	f/min	≘.≘	parts parts/min	parts/min \$/part		
	Value	ud v	55.0%	\$ 2.05	64 0%		\$ 190	61.0%	301.77 54.790	\$ 202 \$/lb.	%D'05	ı. G		\$ 0.36 \$/Ib \$ 0.52 \$/Ib \$ 0.35 \$/Ib		\$ 36.90 \$/ho	150.0	650	O C C	0050 0050	\$ 0.00167	& AS DO	150.0	45.0	3.0 120.0	360.0 parts/min \$ 0.00301 \$/part		
sumptions:	Assumption	Masterbatch Compounding by Techmer PM	% CaCO3	Ecoflex / 64% TiO2/BaSO4	% TiO2/BaSO4	Econes / (Assume) of a SiOz % TiO2	Biomax / 61% CaCO3	% CaCO3	Biolitax / 33% 110Z/Ba3O4	# 110,2,0,2,0,4 Biomax / 50% SiO2	% SiO2	Combined in-line	Blowing	Gemini Plastics Transamerican Plastics Polymer Packaging	Slitting	Gemini Plastics Machine/Labor rate	Machine speed	Machine width	Part Width Parts wide	Parts per minute (single width) Parts per minute on given machine	Cost per part	Transamerican Plastics	Machine speed	מנט	Parts wide Parts per minute (single width)	hine	Printing	General Assumptions 9/19/2005 - 6:48 PM

Biodegradable Wrap Model Assumptions:

Assumption Open items and assignments			This process step not optimized			This process step not optimized		W/rap Model - Rev 005 (N:\\models\Polarcup EarthShell\
A <u>Detail Description</u>	Assume part no greater than 15" x 15"	Assume part no greater than 15" x 15"	Integral to in-line process	Assume part no greater than 15" x 15"	Assume part no greater than 15" x 15"	Not part of in-line process		w
<u>Value</u> <u>Units</u>	\$ 129.00 \$hour 150.00 thmin 45.0 in 155.0 in 155.0 in 150.0 parts 120.0 parts/min 360.0 parts/min 560.00 par	\$ 125.00 \$/hour 150.00 ft/min 45.00 in 150.00 in 150.00 parts 120.00 parts/min 500.00 parts		\$ 45.00 \$/hour 150.00 ft/min 45.00 in 15.00 in 15.00 in 15.00 parts 120.00 parts/min 380.00 parts/min 380.00 parts/min 380.00 parts/min 5.0002/36 \$/part	\$ 37.00 \$/hour 156.0 1/min 45.0 in 15.0 in 15.0 in 126.0 parts/min 126.0 parts/min		\$ 35.90 \$/hour 63.3 f/min 45.0 in	
sumptions: Assumption	Associated Polybag Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per part Cost per part	Transamerican Plastics Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Embossing Gemini Plaetice	Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Transamerican Plastics Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Sheeting	Associated Machine/Labor rate Machine speed Machine width	General Assumptions 9/19/2005 - 6:48 PM

Biodegradable Wrap Model Assumptions:

ssumptions:			Assumption	
Assumption Part width Parts wide Parts wide Parts per minute (single width)	Value Units 15.0 in 3.0 parts 68.6 parts/min	<u>Detail Description</u> Assume part no greater than 15" x 15"	Confidence	Open items and assignments
Parts per minute on given machine Cost per part	1969 parts/min 5 0.05292 \$/part	100 ppm per lane; 2 lanes		Specific Sheeter equipment exists, so that the Bagger would not need to be modified
Transamerican Plastics Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width)	\$ 37.00 \$/hour 50.0 fu/min 45.0 in 15.0 in 30 parts 40.0 parts/min	Assume part no greater than 15" x 15"		
Parts per minute on given machine Cost per part	128.0 parts/min \$ 6.00514 \$/part	Sheeting's limiting factor is 'catching' the sheeted wraps as they come off of the machine, i.e. manual limitation		
Minimum Commercial Volume		all prices are FOB Converter		Product design still not finalized.
Inorganics Anti-block - SiO2 Whitener - TiO2 Inorganic Filler - CaCO3	\$ 0.14 \$/lb. \$ 0.39 \$/lb. \$ 0.99 \$/lb.	Randy verified price Randy verified price Randy verified price	95% 95% 95%	
Resin		9 to 100		
Biomax 4026 - DuPont (Rigid)	\$ 1.00 \$/lb.	\$1.00 provided by Simon based upon perceived economies with volume	10%	
Ecoflex FBX - BASF (Flexible) Ecoflex FBX - BASF (Flexible)	4.80 DM/kg	Provided by H.Schmidt based upon general talks with BASF; up to 30,000MT Assumes 'delivered price'		
Eastar MW - H	\$ 2.60 \$/lb.	High Grade - Provided by Kishan. Assumes 'delivered price'	%06	
Eastar MW - L	\$ 1,63 \$/lb.	Low Grade - Provided by Nshan, Assumes 'delivered price'	%06	
PLA - Hycail B.V. (Rigid)	.\$. 1.00 \$/lb.	Provided by Kishan - verbal quote from Bill Kelly. Hycail U.S. prices not yet available		
Masterbatch Compounding by A. Schulman ES4228 % Filler - Assume CaCO3	an \$ 0.75 \$/Ib. 70%	Proprietary - A.Schulman Inc. % of respective Masterbatch		Randy
General Assumptions 9/19/2005 - 6:48 PM		ဖ		Wrap Model - Rev 005 040 N:\\models\Polarcup EarthShell\Cla

Biodegradable Wrap Model Assumptions:

on ce. Open items and assignments		Can Biotec compound this, or always 3rd pty sourced?	
Assumption Confidence	%26		
Detail Description	Biotec Sales price = 6.50DM Raw Mat. + 1.5DM Compounding	Provided by H.Schmidt - 02/22/01	Derived Total raw material cost excluding compounding cost
Units	7.50 DM/kg \$55 \$/lb.	6.63 DM/kg #37 \$/lb. 11.80 DM/kg 2.45 \$/lb. 6.35 DM/kg #1.11 \$/lb. 11.48 DM/kg 2.38 \$/lb. 9.00 DM/kg	\$/Ib. \$/Ib. \$/Ib. \$/Ib. \$/Ib. \$/Ib.
Value	7.50 DM/I	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$ 0.007
Imptions: Assumption	Masterbatch Compounding by Biotec Bioplast GF 105/30 (Wrap) Bioplast GF 105/30 (Wrap)	PLA - Germany PLA - Germany PLA - Germany Loxamid (Slipping Agent) Loxiol (Slipping Agent) Loxiol (Slipping Agent) K21 (Slipping Agent) K21 (Slipping Agent) Masterbatch white	Bioplast GF 105/30/W20 Ecoflex FBX PLA Slipping Agent Loxamid Loxiol K21 Masterbatch white

Masterbatch compounding costs will remain	וכומיז בין אומוסמי בסווילים והמיו ליכומים ו
-------------------------------------------	---------------------------------------------

95% 95% 95% 95% 95%		
Kishan Memo - 11/06/00 Kishan Memo - 11/06/00 Kishan Memo - 11/06/00 Kishan Memo - 11/06/00 Kishan Memo - 11/06/00	Blow, Slit, (Embosse), Print & Sheet	Integral to in-line process
5 1,000 lbs \$ 145 \$Nb. \$ 1,500 lbs \$ 1,000 lbs \$ 1,00	\$ \$/\b.	\$ 0.36 \$/lb. \$ 0.32 \$/lb. \$ 0.32 \$/lb.
Masterbatch Compounding by Techmer PM Ecoflex / 55% CaCO3 Ecoflex / 64% TiO2/BaSO4 Ecoflex / (Assume) 60% TiO2 Biomax / 61% CaCO3 Biomax / 53% TiO2/BaSO4 Biomax / 50% SiO2	In-line Process Combined in-line	Blowing Gemini Plastics Transamerican Plastics Polymer Packaging

This process step not optimized

Biodegradable Wrap Model Assumptions:

	Confidence Open items and assignments	This process step not optimized Rate for birdher volumes unknown Assume same	as low volumes	Assumes improvement in machine speeds					Rate for higher volumes unknown. Assume same	as low volumes Assumes improvement in machine speeds					This process step not optimized	Rate for higher volumes unknown. Assume same	as low volumes	Assumes improvement in machine speeds					control of the bridges of the control of the contro	nate for nighter volunes dinnown. Assume same as low volumes	Assumes improvement in machine speeds				
Assur	Confi																												
	<u>Detail Description</u>	Integral to in-line process		Represents speed of slowest process in-line	Assume part no greater than 15" x 15"						:	Assume part no greater than 15" x 15"			Integral to in-line process				Assume part no greater than 15" x 15"							Assume part no greater than 15" x 15"			
	<u>Units</u>		\$/hour	ft/min		parts parts/min	parts/min \$/nart			\$/hour ft/min		in parts	parts/min	parts/min \$/part			\$/hour	ft/min in		parts	parts/min	parts/min \$/part		\$/hour	f/min		parts	parts/min parts/min	\$/part
	<u>Value</u>		\$ 36.00 \$/h	,,,,,,,,,,,,	E 50.84		729.0 par fiftener \$,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	*****	150 in 30 par	00000000	000000000			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3050 ft/n				000000000		*****	3000	45.00 15.00 15.00		******	4 0.00289 S/r
sumptions:	<u>Assumption</u> Slittina	Gemini Plastics	Machine/Labor rate	Machine speed	Machine width Part width	Parts wide Parts ner minute (single width)	Parts per minute on given machine	Transamerican Plastics		Machine/Labor rate Machine speed	Machine width	Part width Parts wide	Parts per minute (single width)	Farts per minute on given machine Cost per part	Printing	Associated Polybag	Machine/Labor rate	Machine speed	Part width	Parts wide	Parts per minute (single width)	Farts per minute on given machine Cost per part	Transamerican Plastics	Machine/Labor rate	Machine speed	Machine width Darf width	Parts wide	Parts per minute (single width) Parts per minute on given machine	Cost per part

Biodegradable Wrap Model Assumptions:

Assumption Confidence Open items and assignments	This process step not optimized	Rate for higher volumes unknown. Assume same as low volumes Assumes improvement in machine speeds 15"	Rate for higher volumes unknown. Assume same as low volumes Assumes improvement in machine speeds (15"	This process step not optimized	.15"	Specific Sheeter equipment exists, so that the he; 2 lanes Bagger would not need to be modified	Rate for higher volumes unknown. Assume same as low volumes
<u>Detail Description</u>	Integral to in-line process	Assume part no greater than 15" x 15"	Assume part no greater than 15" x 15"	Not part of in-line process	Assume part no greater than 15" x 15"	100 ppm per lane; 2 lanes	Assume part no greater than 15" x 15"
Units		45.00 Shour 300.0 thmin 45.0 in 15.0 in 240.0 parts 720.0 parts/min 720.0 parts/min	37.50 \$/hour 306.0 ft/min 45.0 in 15.0 in 240.0 parts/min 720.0 parts/min 720.0 parts/min 6.00066 \$/part		35.00 \$/hour 83.3 fumin 45.0 in 15.0 in 3.0 parts 85.6 parts/min	1989.9 parts/min 0.00292 \$/part	37 00 \$/hour 50 0 ft/min 45 0 in 15 0 in 30 parts
Value		un 55-	с ъ		e.	ir)	•
nptions: Assumption	Embossing Gemini Plastics	Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute cogiven machine	Transamerican Plastics Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Sheeting	Associated Machine/Labor rate Machine speed Machine width Part width Parts wide Parts ber minute (single width)	Parts per minute on given machine Cost per part	Transamerican Plastics Machine/Labor rate Machine speed Machine width Part width

Biodegradable Wrap Model Assumptions:

:	ption Open items and assignments		Product design still not finalized.								Randy						
	Assumption Confidence			95% 95% 95%		10%		%06	%06				20%				
	<u>Detail Description</u> Sheeting's limiting factor is 'catching' the	sheeted wraps as they come off of the machine, i.e. manual limitation	all prices are FOB Converter	Randy verified price Randy verified price Randy verified price	\$1 00 provided by Simon based upon	perceived economies with volume	Provided by H.Schmidt based upon general talks with BASF; up to 30,000MT Assumes 'delivered price'	High Grade - Provided by Kishan. Assumes 'delivered price'	'delivered price'	Provided by Kishan - verbal quote from Bill Kelly. Hycail U.S. prices not yet available	Proprietary - A.Schulman Inc. % of respective Masterbatch	Eister Color print - A FOOM Daw Mat	1.5DM Compounding	Provided by H.Schmidt - 02/22/01	Provided by H. Schmidt - 02/22/01	Provided by H.Schmidt - 02/22/01	Provided by H.Schmidt - 02/22/01
	<u>Value</u> <u>Units</u>	120:0 parts/min \$ 0065:14 \$/part		\$ 0.14 \$/lb. \$ 0.99 \$/lb. \$ 0.09 \$/lb.		\$ 1,00 \$/lb.	4 60° DM/kg \$ 0.95° \$/lb.	\$ 2.50 \$/lb.	\$ 1.83 \$/lb.	\$. 4,000 s./lb.	n \$\$ \$//b.		6.00 DM/kg \$ 24 \$/lb.	6.63 DM/kg	t St. WID. (180 DM/kg		\$ 11.48 DM/kg \$ 2.38 \$/lb.
ssumptions:	Assumption	Parts per minute on given machine Cost per part	High Commercial Volume	Inorganics Anti-block - SiO2 Whitener - TiO2 Inorganic Filler - CaCO3	Resin	Biomax 4026 - DuPont (Rigid)	Ecoflex FBX - BASF (Flexible) Ecoflex FBX - BASF (Flexible)	Eastar MW - H	Eastar MW - L	PLA - Hycail B.V. (Rigid)	Masterbatch Compounding by A. Schulman ES4228 % Filler - Assume CaCO3	Masterbatch Compounding by Biotec	Bioplast GF 105/30 (Wrap) Bioplast GF 105/30 (Wrap)	PLA - Germany	Loxamid (Slipping Agent)	Loxarnia (Slipping Agent) Loxiol (Slipping Agent)	Loxiof (Slipping Agent) K21 (Slipping Agent) K21 (Slipping Agent)

General Assumptions 9/19/2005 - 6:48 PM

Biodegradable Wrap Model Assumptions:

			Assumption
<u>Assumption</u>	<u>Value</u> <u>Units</u>	Detail Description	Confidence
Masterbatch white Masterbatch white	9:00 DM/kg \$.87 \$/lb.	Provided by H.Schmidt - 02/22/01	<i>3</i> 6,
Bioplast GF 105/30/W20 Ecoflex FBX PLA Slipping Agent Loxamid Loxiol K21 Masterbatch white	\$ 111.25 \$/lb. \$ 5.05.29 \$/lb. \$ 6.359 \$/lb. \$ 101.9 \$/lb. \$ 10.03 \$/lb. \$ 10.03 \$/lb. \$ 10.03 \$/lb. \$ 10.03 \$/lb.	Derived Total raw material cost excluding compounding cost	

Open items and assignments
Can Biotec compound this, or always 3rd pty

Masterbatch compounding costs will remain relatively high without competition

Assumes cocktail produced at primary Assumes cocktail produced at primary	Blow, Silt, (Embosse), Print & Sheet	Integral to in-line process In-line Process precludes this cost In-line Process precludes this cost In-line Process precludes this cost	Integral to in-line process	In-line Process precludes this cost	Represents speed of slowest process in-line	Assume part no greater than 15" x 15"
40000 lbs \$ 5/lb. \$ 5/lb. \$ 5/lb. \$ 5/lb.	3 \$150	\$ \$ \$ \$ \$Nb.		\$ S/hour	393.0 f/min 45.0 in	15.0 parts 240.0 parts/min 720.0 parts/min
Masterbatch Compounding by Techmer PM Ecoflex / 55% CaCO3 Ecoflex / 64% TiO2/BaSO4 Ecoflex / (Assume) 60% TiO2 Biomax / 61% CaCO3 Biomax / 53% TiO2/BaSO4 Biomax / 53% SiO2	In-line Process Combined in-line	Blowing Gemini Plastics Transamerican Plastics Polymer Packaging	Slitting Gemini Plastics	Machine/Labor rate	Machine speed	Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part

This process step not optimized Rate for higher volumes unknown. Assume same as low volumes

This process step not optimized

Converter is not yet identified Dupont will not convert. Assumes improvement in machine speeds

Biodegradable Wrap Model Assumptions:

c	Open items and assignments Rate for higher volumes unknown. Assume same	as low volumes Assumes improvement in machine speeds		This process step not optimized Rate for higher volumes unknown. Assume same	as low volumes Assumes improvement in machine speeds		Rate for higher volumes unknown. Assume same	as low volumes Assumes improvement in machine speeds			This process step not optimized	Rate for higher volumes unknown. Assume same as low volumes Assumes improvement in machine speeds	
Assumption	Confidence												
	Detail Description	In-line Process precludes this cost	Assume part no greater than 15" x 15"	Integral to in-line process	In-line Process precludes this cost	Assume part no greater than 15" x 15"		In-line Process precludes this cost	Assume part no greater than 15" x 15"		Integral to in-line process	In-line Process precludes this cost	Assume part no greater than 15" x 15"
	<u>Value</u> <u>Units</u>	\$ 5.00ur 309.0 fumin 45.0 in	15.0 in 10 parts 1.0 parts 2.45.0 parts/min 7.20.0 parts/min 7.20.0 parts/min \$		\$ 5.00 f/min 45.0 in	15.0 in 3.0 parts 243.0 parts/min 72.0 parts/min \$		\$ \$/hour 300.0 ft/min 45.0 in		\$/part	***************************************	\$ Shour 300.0 ft/min	45.0 in 15.0 in 3.0 parts 240.0 parts/min 720.0 parts/min
ssumptions:	Assumption	Machine/Labor rate Machine speed Machine wirth	Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Printing Associated Polybag	Machine/Labor rate Machine speed Machine width	Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Transamerican Plastics	Machine/Labor rate Machine speed	Part width Parts wide Parts per minute (single width) Parts per minute (single width)	Cost per part	Embossing Gemini Plastics	Machine/Labor rate Machine speed	Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part

Biodegradable Wrap Model Assumptions:

Assumption Confidence Rate for higher volumes unknown Assume same	as low volumes Assumes improvement in machine speeds		This process step not optimized		Rate for higher volumes unknown. Assume same	as low volumes					75% Generally accepted rate	95% Randy sourced this quote 95% Randy sourced this quote 95% Randy sourced this quote 95% Randy sourced this quote 95% Randy sourced this quote
Detail Description	In-line Process precludes this cost	Assume part no greater than 15" x 15"	Not part of in-line process	Assume part no greater than 15" x 15"		In-line Process precludes this cost	Assume part no greater than 15" x 15"	Sheeting's limiting factor is 'catching' the sheeted wraps as they come off of the	machine, i.e. manuai iimitation		а	e T.T.C 02/16/01 quote T.T.C 02/16/01 quote T.T.C 02/16/01 quote T.T.C 02/16/01 quote T.T.C 02/16/01 quote
<u>Value</u> <u>Units</u>	\$ \$/hour 3995 f/min 450 in	aana		\$ %hour 83.3 ft/min 45.0 in 15.0 in 3.0 parts 66.6 parts/min 169.9 parts/min 169.9 parts/min 8/part		\$	0.6	40.0 parts/min	\$ \$/part		\$ 0.05 \$/10	7,00% % of Value \$ 145.00 \$/40° cntnr \$ 325.00 \$/40° cntnr \$ 325.00 \$/40° cntnr \$ 15.00 \$/40° cntnr
ssumptions: Assumption	Machine/Labor rate Machine speed Machine width	Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Sheeting Accordated	Machine/Labor rate Machine speed Machine width Part width Parts wide Parts per minute (single width) Parts per minute on given machine Cost per part	Transamerican Plastics	Machine/Labor rate Machine speed Machine width	Part width Parts wide	Parts per minute (single width)	Parts per minute on given machine Cost per part	Freight costs:	Between converters (Truck)	Germany to Baltimore - 40' Container Duty Customs Entry Ocean Freight Trucking Messenger

>

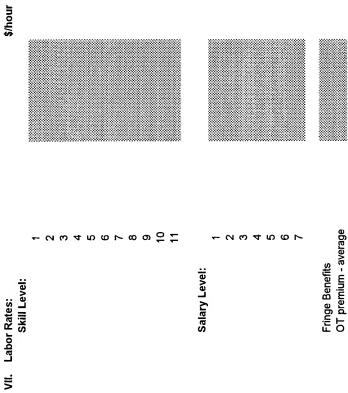
Biodegradable Wrap Model Assumptions:

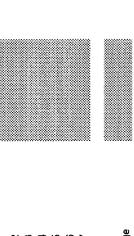
o, T	Assumption	Value	Units	<u>Detail Description</u>	Assumption Confidence	Open item
Ξ.	Energy costs:		\$/k pieces		Toll	Toll manufacturing

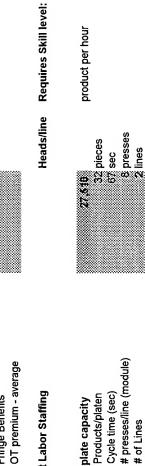
\$/hour

Open items and assignments

Toll manufacturing







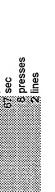
Direct Labor Staffing

≓

Toll manufacturing







Quality Expectations (material efficiency) at each point for potential loss due to imperfect parts

Planned Operating Hours

≚

×

Cycle time (sec)

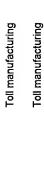
Products/platen

VIII. Nameplate capacity

Uptime Expectations for each unit operation (operating efficiency)

Ξ̈.

General Assumptions 9/19/2005 - 6:48 PM



Biodegradable Wrap Model Assumptions:

<u>Assumption</u>

<u>Value</u>

Units

Detail Description

Assumption Confidence

Open items and assignments

Wrap Model - Rev 005 040501 (2) N:\\models\Polarcup EarthShell\Clamshell

EarthShell Corporation

Biodegradable Wrap Model Assumptions:

Assumption Assumption Value Units Detail Description Confidence Open items a

Confidence Open items and assignments	Toll manufacturing	Toll manufacturing	Toll manufacturing	
<u>Detail Description</u>	Requires Skill level:		Requires Salary level:	
<u>Value</u> <u>Units</u>	Heads/line	600	Heads/line	
<u>Assumption</u> Manufacturing Overhead	XII. Indirect Staffing	XIII. Other Semi Variable Plant Overhead Percent in lieu of \$ detail	XIV, Fixed Plant Overhead Plant management:	

% %0
SG&A

100%	
Straight line	
0% 0% Q years	
CapEx Contingency Capital Installation Capital Life	ptions working capital
	Assumpl

Toll manufacturing Toll manufacturing Toll manufacturing

	%0	%0	%0	%0 .
ons working capital	-inventory materials 2 weeks	-inventory finished goods 2 weeks	-trade receivables 1 month	-trade payables 1 month

Biodegradable Wrap Model EarthShell Corporation

Sandwich Wrap L - PLA/Ecoflex - 50 micron 50% PLA, 15% Ecoflex / 35% Filler - ES4338 15" x 15"

	Weight Mix ratios Fin Prod	Mstr Batch mat req'd	Minimum Commercial Volume Future Price/LB Cost/1000	ommercial ime ime Cost/1000	High Commercial Volume Tariget Price/LB Cost/10	mercial ne et Cost/1000 S
Raw Materials: Pt A - Hycail B V	50.0% (a)	- 8	(a) (a)	0.00	00:	5.62
Ecoflex FBX	15 0% (a)	(a) 220 (b)		1.68	0.95	1.61
Filler - Assume CaCO2	35 0% (a)	(1			0.14	0.55
Total Raw Materials	100.0%	•	•	1.68		7.78
Formulation: PLA - Hycail B.V.	£0 0%	2.55	(a) 1.00	5.62	00:0	0.00
Masterbatch Compounding (cost incl. inorganics) PaperMatch ES4338 550:03%	ncl. inorganics): 50,0%	2.55	(b) 0.75	4.22	00 0	0.00
Total Formulation	100.0%	210		9.84		00.00
Subtotal Raw Mat./Formulation				11.52		7.78
Combined film converting process		5.10	0000	0.00	000	3.37
Separate converting processes Blowing: Gemitt	888	5.10	0.36	4.05	00:0	0.00
Printing: Associated	***			2.78		000
Embossing: No	3838			000		00.0
Sheeting/Slitting: Associated	***			2.92		0.00
Separate converting processes				9.74		0.00
Cost of Manufacture				21.26		11.15
Markup	%0¢			6.38		3.35
Target Selling Price				27.64		14.50

Notes:
(a) Used for calculating High Commercial Volume cost per 1000; i.e. single compounding step.
(b) Used for calculating Minimum & Current Commercial Volume cost per 1000; ie dual compounding step.

Biodegradable Wrap Model EarthShell Corporation

Sandwich Wrap L - Biomax/Eastar - 50 micron 50% Biomax - 4026, 15% Eastar MW / 35% Filler - ES4338 15" x 15"

			Minimum Commercial	ommercial	High Commercial	ercial
	Weight	Mstr Batch	Volume Future	me re-	Volume Target	me get
	Fin.Prod.	g/piece	\$	\$		\$
Raw Materials. Biomax 6926 Eastar MW - H	50.0% (a) (5.0% (a)	22.0	(b) 1.00 (c) 2.00	3.37	1.00	5.62 3.37
Filler - Assume CaCO2	35 0% (a)				O T T	0.55
Total Raw Materials	100.0%			3.37		9.55
Formulation: Biomax 6926	\$0.0%	2.55	(b) 1.00	5.62	00 0	0.00
Masterbatch Compounding (cost incl. inorganics) PaperMatch ES4338 ຮັບ ວິທີ	ncl. inorganics): 50 0%	2.55	(b) 0.75	4.22	000	0.00
Total Formulation	100.0%	5.10		9.84	1	0.00
Subtotal Raw Mat./Formulation				13.21		9.55
Combined film converting process		5.10	000	0.00	030	3.37
Separate converting processes Blowing: Cernsi	***	5.10	0.36	4.05	00 0	0.00
Printing: Ässatieted			****	278		000
Embossing: (50	***		50000	000		000
Sheeting/Slitting: Associated	***			282		000
Separate converting processes				9.74		00.00
Cost of Manufacture				22.95		12.92
Markup	3000			6.89		3.88
Target Selling Price				29.84		16.79

Notes:
(a) Used for calculating High Commercial Volume cost per 1000; i.e. single compounding step.
(b) Used for calculating Minimum & Current Commercial Volume cost per 1000; ie dual compounding step.

Wrap L-BiomaxEcoflex 9/19/2005 - 6:48 PM

Biodegradable Wrap Model EarthShell Corporation

Sandwich Wrap L - Biomax/Ecoflex - 50 micron 50% Biomax - 4026, 15% Ecoflex / 35% Filler - ES4338 15" x 15"

Masterbatch Compounding (cost incl. inorganics): PaperMatch ES4338 50.00% 2.55 (b) 0.75 4.22 0.00 0.00	High Convolution 1 1 00 0 0 0 1 4 0 0 1 4 0 0 1 4 0 0 1 4 0 0 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 4 0 0 1 1 1 1
Total Formulation 100.0% 5.10 9.84 0.00 Subtotal Raw Mat./Formulation 11.52 7.78 Combined film converting processes 5.10 0.00 0.30 3.37 Separate converting processes Blowing: 5.10 0.36 4.05 0.00 0.00 Printing: Associated 0.00 0.00 0.00 0.00 0.00 Sheeting/Slitting: Associated 0.00 0.00 0.00 0.00 0.00	9.74
100.0% \$10 9.84 11.52 11.52 2.76 6.30 0.00 0.30 0.30 0.30 0.30 0.30 0.3	
100.0% \$10 9.84 11.52 11.52 5.10 0.00 0.00	
100.0% 5.10 0.00 0.30 0.30 0.30 5.10 0.30 0.30 0.30 0.30 0.30 0.30 0.30 0	
100.0% \$10 9.84 11.52 11.52 2.10 0.00 0.00 0.30 2.30 2.10 0.36 4.05 0.00 0.00 0.00	
100.0% \$.10 9.84 11.52 11.52 0.00 0.00 0.30	
100.0% 5.10 9.84	
5.10	.2
	Î
**************************************	00°0
60.0% 2.55 (b) 1.00 5.62 0.00 0.00	
1.68 2.55 (b) 1.00 5.62 0.00	
(a) 0.14 1.68 2.55 (b) 1.00 5.62 0.00	1.00 0.95
50.0% (a) (b) 1.00 0.00 1.00 15.0% (a) 1.60 0.95 35.0% (a) 0.77 (b) 1.00 0.00 1.68 0.95 100.0% 1.00 0.00	High Com Volui Tang Price/LB

Biodegradable Wrap Model **EarthShell Corporation**

Ecomax 20/80, 3% SiO2, 5% TiO2, 25% CaCO2 filled, white, printed 4 colors, 30 micron 15" x 15" Sandwich Wrap A - Biomax/Ecoflex, printed, 30 micron

			Minimum Commercial	mmercial	High Commercial	nercial
	Weight	Mstr Batch	Volume Future	me ≄e	Volume Target	ne et
	MIX ratios Fin.Prod.	mat req u g/piece		\$		\$
Kaw Materials: Biomax 6926 Ecoflex FBX	53.5% (a) 13.4% (a)) 0.18 (b)) 1.72 (b)	(b) 1.00 (b) 1.00	0.40 3.77	1.00	7.21
Anti-block - SiO2 Whitener - TiO2 Inorganic Filler - CaCO3	30% (a) 50% (a) 250% (a)				D 14 D 99 D 03	0.06 0.67 0.30
Total Raw Materials	*0000			4.18		9.95
Formulation: Biomax 6926 Ecoflex FBX	30.2% 13.4%	1.84	(b) 1:00 (c) 1:00	4.06	00 0	0.00
Masterbatch Compounding (cost inc) Biomax / 50% SiO2 Biomax / 53% TiO2/BaSO4 Biomax / 61% CaCO3	ci	0.37 0.58 2.50	(b) 1.62 (c) 1.70 (b) 1.50	1.31 2.16 8.27	00 0 0 0 0	00:0
Total Formulation	100.0%	8,10		17.58		00.00
Subtotal Raw Mat./Formulation				21.76		9.95
Combined film converting process		6.10	00.0	0.00	0.30	4.03
Separate converting processes Blowing:		6.10	920	4.84	00.0	0.00
Printing: Associated			0000	278		0000
Embossing: ftip			:	000	***	000
Sheeting/Slitting: Associated				26 2		0000
Separate converting processes				10.54		0.00
Cost of Manufacture				32.30		13.99
Markup	3000			69.6		4.20
Target Selling Price				41.99		18.18

Notes:
(a) Used for calculating High Commercial Volume cost per 1000; i.e. single compounding step.
(b) Used for calculating Minimum & Current Commercial Volume cost per 1000; ie dual compounding step.